Amendments to the Claims:

1. (Currently Amended) A method for stably transferring DNA into multi-potential hematopoietic stem cells in the G0 phase of the cell cycle, which comprises transducing said multi-potential hematopoietic stem cells with an adeno-associated virus vector that contains said DNA, wherein the transferred DNA remains integrated into the genome of the multi-potential hematopoietic stem cells for at least 4 weeks, wherein the multi-potential hematopoietic stem cells are maintained in the presence of cytokines IL-3, IL-6 and stem cell factor, and wherein the levels of said cytokines are no greater than about 15 ng/ml IL-3, 15 ng/ml IL-6 and 1.5 ng/ml stem cell factor.

2. (Previously Amended) A method according to claim 1, wherein the transduced multi-potential hematopoietic stem cells are maintained under conditions such that at least about 92 to 99% of the cells in the G0 phase remain in the G0 phase for at least about two days.

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3. (Original) A method according to claim 2, wherein the conditions under which the transduced multi-potential hematopoietic stem cells are maintained include a transduction time of about 2 hours to about 48 hours.

4. (Original) A method according to claim 2, wherein the conditions under which the transduced multi-potential hematopoietic stem cells are maintained include a transduction time of about 2 hours to about 24 hours.

5. (Original) A method according to claim 2, wherein the conditions

under which the transduced multi-potential hematopoietic stem cells are maintained include a transduction time of about 18 hours to about 24 hours.

6. (Canceled)

7. (Canceled)

8. (Currently Amended) A method according to claim 1 ~~7~~, wherein the conditions under which the multi-potential hematopoietic stem cells are maintained include cytokine levels of about 1 ng/ml IL-3, 1 ng/ml IL-6 and 0.1 ng/ml ~~granulocyte-macrophage colony stimulating~~ stem cell factor to about 15 ng/ml IL-3, 15 ng/ml IL-6 and 1.5 ng/ml ~~granulocyte macrophage colony stimulating~~ stem cell factor.

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9. (Currently Amended) A method according to claim 1 ~~6~~, wherein the conditions under which the multi-potential hematopoietic stem cells are maintained include cytokine levels of about 5 ng/ml IL-3, 5 ng/ml IL-6 and 0.5 ng/ml ~~granulocyte-macrophage colony stimulating~~ stem cell factor to about 10 ng/ml IL-3, 10 ng/ml IL-6 and 1 ng/ml ~~granulocyte-macrophage colony stimulating~~ stem cell factor.

10. (Currently Amended) A method according to claim ~~7 or 9~~ 1, wherein the conditions under which the multi-potential hematopoietic stem cells are maintained include cytokine levels of about 10 ng/ml IL-3, 10 ng/ml IL-6 and 1 ng/ml ~~granulocyte-macrophage colony stimulating~~ stem cell factor.

11. (Canceled)

12. (Canceled)

13. (Previously Amended) A method according to claim 1, wherein the transferred gene remains integrated into the genome of the multi-potential hematopoietic stem cells for at least 8 weeks.

14. (Original) A method according to claim 1, wherein the multi-potential hematopoietic stem cells are $CD34^{+++}CD38^{-}$ cells.

15. (Original) A method according to claim 1, wherein the adeno-associated virus vector contains said DNA within the adeno-associated virus inverted terminal repeats, and wherein the adeno-associated virus vector is encapsidated.

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16. (Canceled).

17. (Original) A method according to claim 15, wherein the adeno-associated virus vector has a wild-type polyadenylation region.

18. (Original) A method according to claim 15, wherein the adeno-associated virus vector has a heterologous polyadenylation region.

19. (Canceled).

20. (Canceled).

21. (Canceled).

22. (Original) A method according to claim 1, wherein the DNA is selected from a gene, a gene fragment, an antisense DNA, a marker gene, a reporter gene and a recombinant DNA.

23. (Previously Amended) A method for stably transferring DNA into multi-potential hematopoietic stem cells in the G0 phase of the cell cycle, which comprises transducing said multi-potential hematopoietic stem cells with an adeno-associated virus vector that contains said DNA, wherein said multi-potential hematopoietic stem cells are $CD34^{+++}CD38^{-}$ cells in the G0 phase of the cell cycle and wherein the transferred DNA remains integrated into the genome of the multi-potential hematopoietic stem cells for at least 4 weeks.

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24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

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33. (Canceled)